

Vic Camp
Fall 2009

Geol 688: Advanced Igneous Petrology

Office: GMCS-228K

Office hours: anytime, but official office hours are 1100-1200 every day.

General comments. The course will be run in a modified seminar fashion, with a significant amount of lecture interspersed with readings, discussion, and a few exercises. We will examine the genesis of Igneous rocks through an understanding of phase diagrams, geochemical patterns, and field relationships, and tectonic settings. We examine through reading articles how others have applied their knowledge of petrologic processes to magmatic systems in various tectonic environments.

Main Topics. Both the topics and the schedule will remain flexible, but I will make an attempt to proceed in the following order:

Nature of the upper mantle

Ternary phase diagrams

Processes in igneous systems and their recognition

Origin of basalt

Stratiform gabbroic complexes

Origin of andesite, volcanic arcs, and calc-alkaline batholiths

Rhyolite and bimodal basalt-rhyolite suites

Grading. Final grades will be based on the following:

Mid-term exam: 15%

Final exam: 25%

Course project: 30%

Class Participation: 30%

Project: Your project will be to lead a discussion and write a summary of a professional paper with high petrological content. The paper will be of your choosing, but you must run it by me first. Each paper will be read by the rest of the class, so you will need to make copies and disperse them in time for others to read. You will lead a discussion of the paper in class, from the beginning to the end. However, analyzing the paper will also be a group effort, so you should encourage others to express their interpretations of various aspects of the paper during the discussion. You will write a 3-5 page summary of the paper and the project will be graded on both the summary and your effort in the discussion period. We will discuss each paper during the last month or so of class.